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Draft

COMMUNICATION FROM THE COMMISSION

in the framework of the implementation of Commission Regulation (EU) No .../... implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for local space heaters, and of the implementation of Commission Delegated Regulation (EU) No .../... supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to energy labelling of local space heaters

(Text with EEA relevance)

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(Text with EEA relevance)

(Publication of titles and references of transitional methods of measurement and calculation¹ for the implementation of Regulation (EU) No .../..., and in particular Annexes III and IV thereof, and for the implementation of Regulation (EU) No .../..., and in particular Annexes VII and VIII thereof)

1. References

Parameter	ESO	Reference / title	Notes
Solid fuel fired local space heaters			
Useful efficiency at nominal and minimum heat output: $\eta_{th,nom}$, $\eta_{th,min}$	CEN	for all other open/closed fronted appliances and cookers: EN 16510-1:2013 §7.3, A.6.2 for pellet fired appliances: EN 14785:2006 §6.4.2 , A.4.7 & A.4.8 for slow heat release appliances: EN 15250:2007-06 §6.3, A.4.6 & A.5 & A.6.2.2	Standard series EN 16510 will replace: EN 13240:2001 (EN 13240:2001/A2:2004/C2:2007) EN 13229:2001 (EN 13229:2011 §6.8) EN 12815:2001 EN 12809:2001
Seasonal space heating efficiency η_s	CEN	(read Note)	According to commission regulation (EU) No.../.. of XXX, implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for local space heaters
Nominal heat output, minimum heat output: P_{nom} , P_{min}	CEN	EN 16510-1:2013 A.4.7 & A.4.8, EN 14785:2006 §6.5 , A.4.7 & A.4.8 EN 15250:2007-06 §6.3 & A.6.2.2	P_{nom} corresponds to P_N in EN 16510-1:2013 P_{min} corresponds to reduced heat output in EN 16510-1:2013 P_{min} corresponds to reduced heat output in EN 14785:2006

¹ It is intended that these transitional methods will ultimately be replaced by harmonised standard(s). When available, reference(s) to the harmonised standard(s) will be published in the Official Journal of the European Union in accordance with Articles 9 and 10 of Directive 2009/125/EC.

			P_{nom} corresponds to P in EN 15250:2007. P_{min} is not described in EN 15250:2007, but shall be established (if applicable) in a similar way as the nominal heat output.
Permanent pilot flame power requirement P_{pilot}			
Direct heat output	CEN	EN 14785:2006, A.6.2.4 EN 15250:2007, A.6.2.2 EN 16510-1:2013, A.6.2.4	
Indirect heat output	CEN	EN 14785:2006 A.6.2.3 EN 16510-1:2013 A.6.2.3	For slow heat release stoves no heat output to water calculation is presented. In case the appliances does have such output, the calculation principles of prEN16510-1 shall be used
Electrical power consumption at nominal heat output, el_{max}	CEN	EN 15456:2008-06 §3.4.1 & §5.1.3.1.	Corresponds to $P_{aux,100}$ EN16510-1 requires 'electrical auxiliary energy, in W, if applicable' to be shown on the appliance marking, but no methods to establish this has been provided. The principal EN15456 shall be used.
Electrical power consumption at minimum heat output, el_{min}	CEN	EN 15456:2008-06 §3.4.1 & §5.1.3.2.	As minimum heat output shall be used the minimum output as declared by the manufacturer of the appliances Corresponds to $P_{aux,30}$
Standby mode power consumption, el_{sb}	CEN	EN 15456:2008-06 §3.4.1 & §5.1.3.3 or IEC 62301 Ed. 2.0 b:2011 §5.3	Corresponds to $P_{aux, sb}$ Corresponds to power consumption in standby mode in IEC 62301 Ed. 2.0 :2011
Emissions of particulate matter (PM), according Annex III 4 a) i) (1) ('heated filter')	CEN	for measurement according (heated filter) EN 16510-1:2013, G.2	
Emissions of particulate matter (PM), according Annex III 4 a) i) (2) ('dilution tunnel')	CEN	for measurement according (full flow dilution tunnel) EN 16510-1:2013, G.3	
Emissions of organic gaseous compounds (OGC)	CEN	EN 16510-1:2013, F.4	
Emissions of carbon monoxide (CO)	CEN	EN 16510-1:2013 A.4.4.2 and A.6.2.6	
Emissions of	CEN	EN 16510-1:2013 Annex E.5	

nitrogen oxides (NOx)			
Gaseous fuel fired local space heaters, except luminous heaters and tube heaters			
Direct heat output	CEN	EN 613:2000 EN 1266:2002 §3.5.1.3 & § 3.5.1.4 and § 7.12. EN 13278:2013 Open fronted gas-fired independent space heaters §6.3 & §6.12 & §7.12 & §7.3.1	This is the heat output to the space the product is installed in. Corresponds to Q_{out} in EN 1319:2009 and EN 1266:2002 and EN 13278:2013 and shall be calculated with the equation $Q_{out} = Q_N * \eta_N$, where Q_N is the nominal heat input and η_N is the nominal efficiency. Q_{out} shall be calculated as gross calorific value.
Indirect heat output	CEN	(read Note)	The indirect heat output of gas fired local space heaters is not described in EN standards. For the purpose of declaration and verification the principles as applied in EN 15610-1 may be used.
Useful efficiency at nominal and minimum heat output: $\eta_{th,nom}$, $\eta_{th,min}$	CEN	prEN 613:2000 §7.11.2 EN 1266:2002 §6.12 & §7.12 EN 13278:2013 §6.12 & §7.12	EN 613 $\eta_{th,nom}$ and $\eta_{th,min}$ shall be calculated as η in conditions applicable to the nominal and minimum heat output, if relevant. $\eta_{th,nom}$ corresponds to η if determined with nominal heat input. $\eta_{th,min}$ corresponds to η if determined with minimum heat input in EN 1266:2002 and EN 13278:2013 All values shall be based on net calorific value.
Nominal heat output, minimum heat output: P_{nom} , P_{min}	CEN	prEN 613:2000 EN 1266:2002 §6.3.1 & §7.3.1 and §6.12 & §7.12 EN 13278:2013 §6.3.1 & §7.3.1	EN 613 P_{nom} shall be determined as $P_{nom} = Q_n * \eta$ applicable to nominal output conditions. For Q_n see §7.3.1 . P_{min} shall be determined as $P_{min} = Q_{min} * \eta$ for minimum output conditions. For Q_{min} see §7.3.5. P_{nom} shall be determined with $P_{nom} = Q_n * \eta_{th,nom}$ and P_{min} shall be determined with $P_{min} = Q_m * \eta_{th,min}$ in EN 1266:2002 and EN 13278:2013. All values shall be based on net calorific value.
Electrical power consumption at nominal heat output, el_{max}	CEN	EN15456:2008 06: §3.4.1	el_{max} corresponds to $P_{aux, 100}$ in EN15456:2008, measured at nominal load operation
Electrical power consumption at minimum heat output, el_{min}	CEN	EN15456:2008-06: §3.4.1	el_{min} corresponds to $P_{aux, 30}$, measured at an applicable part load operation
Standby mode power	CEN	EN15456:2008-06: §3.4.1	el_{sb} corresponds to either $P_{aux, sb}$ in

consumption, el_{sb}		or IEC 62301 Ed. 2.0 b:2011 §5.3	EN15456:2008 or to the power consumption in standby mode in IEC 62301 Ed. 2.0 :2011
Emissions of nitrogen oxides (NO_x)	CEN	prEN 613:2000 §7.7.4 EN 1266:2002 §6.7.2 & §7.7.4 and Annex G EN 13278:2013 §6.7.2 & §7.7.4 and Annex H	prEN61, EN1266 and EN13278 establish NO_x emissions as weighted values over full-modulating-minimum load conditions. For declaration and verification purposes the emission at full load $NO_x(max)$ applies.
Permanent pilot flame power requirement P_{pilot}	CEN	according EN1266:2002, §7.3.1	prEN613 and EN13278 do not have a clause that describes how to calculate the heat input of the ignition burner.
Liquid fuel fired local space heaters			
Direct heat output	CEN	EN 1:1998§6.6.2 EN 13842:2000: § 6.3 and § 6.6.	The direct heat output is the heat capacity according EN 1:1998§6.6.2 In EN 13842 the direct heat output can be calculated as: $Q_0 * (1-q_A)$ All values shall be based on net calorific value.
Indirect heat output	CEN	(read Note)	The indirect heat output of liquid fuel fired local space heaters is not described in EN standards. For the purpose of declaration and verification the principles as applied in EN 15610-1 may be used.
Useful efficiency at nominal and minimum heat output: $\eta_{th,nom}$, $\eta_{th,min}$	CEN	EN 1:1998 §6.6.1.2 EN 13842: §6.6.6	Following EN 1:1998 $\eta_{th,nom}$ corresponds to η at maximum oil flow rate, $\eta_{th,min}$ shall be determined as η at minimum oil flow rate. Following EN 13842 $\eta_{th,nom}$ shall be calculated as $\eta_{th,nom} = 1-q_a$, with q_a measured at nominal heat input or at minimum heat input (where applicable) All values shall be based on net calorific value.
Nominal heat output, minimum heat output: P_{nom} , P_{min}	CEN	EN 1:1998-05 §6.6.2 EN 13842:2000: § 6.3 and § 6.6.	Following EN 1:1998 P_{nom} corresponds to P at maximum (is nominal) and minimum oil flow rate. Following EN 13842 the nominal heat output can be calculated as: $Q_0 * (1-q_A)$ for nominal and minimum heat output conditions.
Electrical power consumption at nominal heat output, el_{max}	CEN	EN15456:2008-06 Heating boilers. Electrical power consumption for heat generators. System boundaries. Measurements, §3.4.1. & §5.1.3.1.	el_{max} corresponds to $P_{aux 100}$ in EN15456:2008

Electrical power consumption at minimum heat output, eI_{min}	CEN	EN15456:2008-06, §3.4.1. & §5.1.3.2.	Corresponds to auxiliary power requirement $P_{aux\ 30}$ in EN15456:2008
Standby mode power consumption, eI_{sb}	CEN	EN15456:2008, §3.4.1. & §5.1.3.2.or IEC 62301 Ed. 2.0 b:2011§5.3.	Corresponds to $P_{aux\ sb}$ in EN15456:2008 electrical power consumption P_{aux} Corresponds to power consumption in standby mode in IEC 62301 Ed. 2.0 :2011
Emissions of nitrogen oxides (NO _x)	CEN	EN 1:1998 §6.6.4	EN 13842 does not describe NO _x measurement, although §5.3.2 sets a maximum requirement. For declaration and verification the method according EN 1 shall be used.
Permanent pilot flame power requirement P_{pilot}	CEN	EN1266:2002, §7.3.1	For declaration and verification of such a power requirement the method as in EN1266:2002, §7.3.1 shall be used.
Electric local space heaters			
Nominal heat output (P_{nom})	CENELEC	(see Note) for electric portable, fixed heaters and underfloor heaters: IEC/EN 60675 ed 2.1;1998 §16 for electric storage heaters: IEC/EN 60531:1999 §9	The identification of the nominal heat output is not measured in standards. The electric power input at nominal heat output is considered representative for the nominal heat output. P_{nom} corresponds to the following applicable standards: IEC/EN 60335-1: Household and similar electrical appliances – safety – rated voltage: 250V for single-phase appliances, up to 480V for others, not intended for appliances for domestic use as usual IEC/EN 60335-2-30: Household and similar electrical appliances – safety – particular requirements for room heaters IEC/EN 60335-2-61: Household and similar electrical appliances – safety – particular requirements for thermal storage room heaters ²⁸ IEC/EN 60335-2-96: Household and similar electrical appliances – safety – particular requirements for flexible sheet heating capability in IECbuilding structure) IEC/EN 60335-2-106: Household and similar electrical appliances – safety – particular requirements for heated carpets and for heating units for room heating IEC/EN 60531:1991. Household electric thermal storage room heaters – methods for measuring performance

			P_{nom} corresponds to the usable power in IEC 60675 ed. 2.1:1998
Standby mode power consumption, el_{sb}	CENELEC	IEC 62301 Ed. 2.0 b:2011 §5.3	Corresponds to power consumption in standby mode in IEC 62301 Ed. 2.0 :2011
Luminous and tube heaters			
Useful efficiency at nominal and minimum heat output: $\eta_{th,nom}, \eta_{th,min}$	CEN	(read Note)	Neither EN 416 nor EN 419 present a method for determining the useful efficiency of the heater. For tube heaters the useful efficiency shall be determined on the basis of the flue gas losses as described in EN 1319, § 7.4. Values shall be based on gross calorific value. For luminous heaters a value of 85.6% shall be assumed (based on gross calorific value of fuel).
Nominal heat output, minimum heat output: P_{nom}, P_{min}	CEN	Luminous heaters: EN 419-2 §7.2.2.4.3 Tube heaters: EN 416	For luminous and tube heaters, the heat output is calculated as: heat output = heat input Q_n * useful efficiency, at nominal or minimum load All values shall be based on net calorific value of fuel.
F_{env}	CEN	EN 1886:2007 §8.2.1	F_{env} depends on class T1 to T5 as established by EN 1886
Radiant factor (RF for nominal and minimum)	CEN	Tube heaters: EN 419-2: §7.2.1.2 Luminous heaters: EN 416-2 §7.2.1.2	RF at nominal heat output corresponds to R_f , RF at minimum heat output corresponds to R_f , but measured at minimum heat output. R_f shall be based on net calorific value.
Electrical power consumption at nominal heat output, el_{max}	CEN	(read Note)	Neither EN416 nor EN 419 describe a method for determining the electric power requirement. Therefore for declaration and verification purposes the method and principles as described in EN 15456, but then applicable operating conditions typical to luminous and tube heaters, shall apply.
Electrical power consumption at minimum heat output, el_{min}	CEN	(read Note)	
Standby mode power consumption, el_{sb}	CEN	IEC 62301 Ed. 2.0 b:2011 § 5.3	Corresponds to power consumption in standby mode in IEC 62301 Ed. 2.0

			:2011
Permanent pilot flame power requirement P_{pilot}	CEN	(read Note)	Neither standard EN 416 nor EN 419 describe a method for determining a power requirement for a permanent pilot flame (ignition burner). For declaration and verification of such a power requirement the method as in EN1266:2002, §7.3.1 shall be used.

2. Correction for the influence of the nitrogen content of the fuel for the purposes of NO_x emissions

$$NO_x = NO_{x,meas} - \left(0.1 \cdot N_{meas} \cdot \left(\frac{10000}{N_{meas}} \right)^{0.5} - 0.1 \cdot N_{ref} \cdot \left(\frac{10000}{N_{ref}} \right)^{0.5} \right) \cdot 0.4$$

where:

- (1) NO_x is the emission of nitrogen oxides, expressed in mg/m^3 ;
- (2) $NO_{x,meas}$ is the measured emission of nitrogen oxides, expressed in mg/m^3 ;
- (3) N_{meas} is the nitrogen content of the fuel, measured in mg/kg dry fuel;
- (4) N_{ref} is the reference value for nitrogen content of solid fuel; $N_{ref} = 1000$ mg/kg dry fuel.